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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/651,498      | 08/30/2000  | JOHN T. DEVLIN       | MIO-0071-PA         | 1401             |

7590 05/05/2004

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| EXAMINER |
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KACKAR, RAM N

|          |              |
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| ART UNIT | PAPER NUMBER |
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1763

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

09/651,498

### Applicant(s)

DEVLIN ET AL. 09651498

### Examiner

Ram N Kackar

### Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 36,39-42 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 36,39-42 and 44-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2 Claims 36 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto et al (US 5762709) in view of Yoshio Kimura (US 5578127).

Sugimoto et al disclose a spin coating apparatus disclosing a heat regulating element (Fig 2-50), a cylindrical heat regulation void to accommodate an object (Fig 2 1a) and a circumferential gas flow path (Fig 2-30), a temperature sensor in gas flow path (Fig 3 -58a), rotary drive motor, rotary drive spindle (Fig 2-1b, 1) exhaust gas profile (Fig 5 F) and a wafer support (Fig 2 W).

Sugimoto et al do not disclose the regulating frame with fluid inlet and outlet and an additional heat-regulating flange attached to the drive motor.

Yoshio Kimura discloses a heat regulating flange (Fig 2-31b), a rotary drive motor (31) attached to a rotary spindle extending through flange body (31a), liquid source coupled to the fluid conduit (33), a controller coupled to the liquid source (fig 2-36 and Col 5 line 17-19 and line 42- 50), programmed (Col 5 line 42-50) to be responsive to a signal from a temperature sensor proximate the rotary spindle passage and fluid conduit (Arrow connected to 36) so as to

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control temperature of flange by controlling the temperature of the fluid (Col 4 line 47-50) and a rotatable wafer support (28).

Therefore it would have been obvious for one of ordinary skill in the art at the time invention was made to replace external air flow temperature adjustment unit of Sugimoto by a water jacket around the gas flow enclosure (30) like the one Yoshio Kimura discloses around the rotary spindle in order to have more efficient and less expensive temperature control system and additionally to have a heat regulation flange (as disclosed in Fig 2) to prevent heat conduction from the motor to the wafer.

3 Claims 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto et al (US 5762709) in view of Yoshio Kimura (US 5578127) as applied to claim 36 and further in view of Hayes (US 6107608).

Sugimoto et al or Yoshio Kimura discloses temperature control (Fig 2) but do not expressly disclose the location of the temperature sensor.

Hayes discloses a similar heat-regulating flange where the temperature sensor is embedded in it (Fig 7-38 and Col 5 line 47-48).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to embed the temperature sensor so as to have a stable temperature sensing and close feed back control of temperature for the spin chuck.

#### ***Response to Amendment***

Applicant's arguments filed 2/24/2004 have been considered but they are not persuasive.

Applicant argues that Sugimoto does not disclose an interaction of the exhaust gas flow path traveling through conduit 30 to this fluid.

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Sugimoto discloses the need of the temperature control of the gas and discloses a mechanism for this. The temperature control of a gas is essentially done by an interaction to fluid in a conduit. For example control of air in air conditioning is done through interaction with a refrigerant fluid in a conduit. In fact the temperature control of exhaust gas in Sugimoto is also obviously done in this way, although not at the spindle. This may however only disclose a rearrangement of parts and is determined obvious.

Regarding applicants assertion about motivation to combine and appropriate guidance from MPEP, the following quote is from MPEP 2143.

“Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art”.

Examiners position is that motivation to combine in this instance would be derived from common knowledge available to one of ordinary skill.

### ***Conclusion***

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571 272 1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RK

  
GREGORY MILLS  
SUPERVISORY PATENT EXAMINER  
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